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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,393

04/01/2004

Virinder Mohan Batra

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23550 7590 01/25/2007
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EXAMINER

SMITH, CAROLYN L

ART UNIT

PAPER NUMBER

1631

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/816,393

Applicant(s)

BATRA ET AL.

Examiner

Carolyn L. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's amendments and remarks, filed 11/10/06, are acknowledged. Amended claims 1, 3, 4, and 8 are acknowledged.

Applicant's arguments, filed 11/10/06, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 1-20 are herein under examination.

Specification

This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR § 1.821 (a)(1) and (a)(2). See for example, pages 6 and 7 of the specification. However, this application fails to comply with the requirements of 37 CFR § 1.821 through 1.825, because it lacks SEQ ID Nos cited along with each sequence in the specification. Applicant(s) are required to submit a computer readable form sequence listing, and a paper copy, or CD-ROM incorporated by reference into the specification, statements under 37 CFR § 1.821 (f) and (g), if there is a need to list additional sequences in the sequence listing. Applicant(s) are given the same response time regarding this failure to comply as that set forth to respond to this office action. Failure to respond to this requirement may result in abandonment of the instant application or a notice of a failure to fully respond to this Office Action.

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Applicants state that they submitted a one-page paper copy of the Sequence Listing and CRF and that SEQ ID NO: 1 on page 6 is not different from the sequence shown on page 7.

This statement is acknowledged; however the sequence compliance issue has not been fully addressed.

As noted in CFR § 1.821 (a):

Nucleotide and/or amino acid sequences as used in §§ 1.821 through 1.825 are interpreted to mean an unbranched sequence of four or more amino acids or an unbranched sequence of ten or more nucleotides.

As noted in CFR § 1.821 (d):

Where the description or claims of a patent application discuss a sequence that is set forth in the "Sequence Listing" in accordance with paragraph (c) of this section, reference must be made to the sequence by use of the sequence identifier, preceded by "SEQ ID NO:" in the text of the description or claims, even if the sequence is also embedded in the text of the description or claims of the patent application.

Appropriate correction is requested.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

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This rejection is maintained.

Under the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (published in the O.G. notice (1300 OG 142) on 11/22/2005) a method, system, and program product that does not result in a physical transformation of matter MAY be statutory where it recites a concrete, tangible and useful result; i.e. a practical application.

In the instant case, the claims are directed to a system and method for securing an electronic transmission of a nucleotide chain as well as program products for encoding and decoding a nucleotide chain. As the program product is not necessarily a physical object, it is not automatically statutory. Whether the program product claims are statutory therefore rests on whether the method/program is statutory. In the instant case, the means limitations of the program products as well as the system and method do not result in a physical transformation of matter, nor is any concrete, tangible and useful result produced/recited. Therefore, these claims are not statutory.

Applicants argue that the United States Code requires that the invention be “new and useful”, but not that the result be “concrete, tangible, and useful”. As stated above, it is noted that under the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (published in the O.G. notice (1300 OG 142) on 11/22/2005) a method, system, and program product that does not result in a physical transformation of matter MAY be statutory where it recites a concrete, tangible and useful result; i.e. a practical application.

Applicants argue that concreteness and tangibility are not dispositive factors on the issue of patentability in and of themselves, but rather factors for use in determining whether the

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invention is useful. This statement is found unpersuasive as the Guidelines state that if the invention does not result in a physical transformation of matter, then it may be statutory if it recites a concrete, tangible, AND useful result. Therefore, the latter statutory requirement requires all three issues (concrete, tangible, AND useful result) to be fulfilled. Applicants argue that the preamble of claim 1 provides a use. This statement is found unpersuasive in satisfying the statutory requirements due to the absence of a tangible result, such as some sort of outputting or displaying to a user. Without such output or display, then any electronic version of a nucleic acid can be interpreted to be a listing held in computer memory, for example, which is never put into a tangible form. Applicants argue that the function of claim 1 involves a transformation. It is noted that there is no *physical* transformation of matter, such as a laboratory step. Applicants argue the same reasons for instant claims 8, 14, and 17 as they did for instant claim 1. It is noted that the arguments for instant claim 1 were unpersuasive and are therefore also unpersuasive for instant claims 8, 14, and 17. Applicants argue that instant claims 14 and 17 are directed to a program product that recite “means for” limitations. Applicants further argue that these “means for” limitations recite features that are independent physical acts that manipulate data to achieve a useful result. This statement is found unpersuasive as the “means for” limitations may be interpreted to take place solely in the computer without any physical transformation of matter. While the claims may have a concrete and useful result, there is no tangible result. In other words, there is no result that is communicated to a user in a tangible manner, such as displaying or outputting a result. Applicants incorporate their arguments for the remaining claims; however, their arguments have already been deemed unpersuasive for the reasons given above.

Claims Rejected Under 35 U.S.C. § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

The preamble of claim 1 recites a system for securing an electronic version of a nucleotide chain; however, the body of the claim does not recite any type of electronic version. Therefore, it is unclear if the preamble or the body of claim 1 is controlling the metes and bounds of this claim. Clarification of this issue via clearer claim wording is requested. Claims 2-7 are also rejected due to their dependency from claim 1. This rejection is necessitated by amendment.

Applicants argue that they have amended claim 1 to provide further clarification. This statement is found unpersuasive as a similar issue still exists in that the preamble now addresses an electronic version while the body of the claim does not mention any sort of electronic version.

Claims 1-7 recite "a system for" limitations that are vague and indefinite. It is unclear what structural limitations are intended for the system as these are only "intended use" limitations. Clarification of this issue via clearer claim wording is requested. This rejection is maintained.

Applicants argue that clarification may be found on page 7, last paragraph, of the specification. This statement is found unpersuasive as the features upon which applicant relies are not recited in the rejected claims. Although the claims are interpreted in light of the

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specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections – 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-12, 14, 15, 17, 18, and 20 are rejected under 35 USC 102(b) as being anticipated by Rungarsityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897).

This rejection is maintained and reiterated for reasons of record.

Rungarsityotin et al. disclose a grid-enabling software technology with a grid security system and method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, last three paragraphs and Figure 1) including visualizing, analyzing, and transporting XML-based DNA data (abstract) which represents a security system for securing an electronic version of a nucleotide chain, as stated in the preamble of claims 1 and 8. Rungarsityotin et al. disclose exchanging information on a particular gene or coding regions (abstract), integrating a physical map of BAC sequence from a rice chromosome (Figure 2), using BAC-end sequences and BAC fingerprint contigs and linking critical regions of interest onto a sequence-ready map (page 894, first paragraph) which represents identifying

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coding and non-coding regions in the nucleotide chain, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) which represents selectively encrypting only the coding regions identified in the nucleotide chain, as stated in instant claims 1, 8, 14, and 17. Rungsarityotin et al. disclose transporting these XML-based DNA data and using a Web browser and Web-based viewer (abstract and Figure 2), as stated in instant claims 2-4, 8, 11, 12, 15, and 18. Rungsarityotin et al. disclose grid technologies and recording DNA sequencing data in computerized databases to facilitate analysis, storage and retrieval and creating a database containing the encrypted and unencrypted non-coding regions as discussed above (page 892, fourth paragraph; page 893, last two paragraphs to page 894, first paragraph; and Figure 2) which represents receiving, as stated in instant claims 6, 7, 9. Rungsarityotin et al. disclose visualizing DNA (abstract), transforming data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating, as stated in instant claims 6, 9, and 17. Rungsarityotin et al. disclose a system involving converting algorithms to convertible code such as Java for data acquisition, translation, and distributing computational tasks (page 896, second paragraph). Rungsarityotin et al. disclose using the grid data structure and query engine to respond to specific bioinformatics questions including a database for nucleotide chain queries (page 894, last paragraph to page 896, first paragraph), as stated in instant claims 7, 10, and 20. Rungsarityotin et al. disclose computers (Figure 1), Internet2 (abstract), data structures, software technologies, programs, storage systems, files, and

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databases (page 892, last four paragraphs and page 893, last paragraph), which represents a program product as stated in instant claims 14, 15, 17, 18, and 20.

Thus, Rungsarityotin et al. anticipate claims 1-4, 6-12, 14, 15, 17, 18, and 20.

Applicants argue that Rungsarityotin et al. do not recite the limitations of instant claim 1.

This statement is found unpersuasive as the prior art discloses these limitations, as reiterated below:

Rungsarityotin et al. disclose a grid-enabling software technology with a grid security system and method featuring a security infrastructure to transform bioinformatics genomic data from different sites to a standard format (page 892, last three paragraphs and Figure 1) including visualizing, analyzing, and transporting XML-based DNA data (abstract) which represents a security system for securing an electronic version of a nucleotide chain, as stated in the preamble of claim 1. Rungsarityotin et al. disclose exchanging information on a particular gene or coding regions (abstract), integrating a physical map of BAC sequence from a rice chromosome (Figure 2), using BAC-end sequences and BAC fingerprint contigs and linking critical regions of interest onto a sequence-ready map (page 894, first paragraph) which represents identifying coding and non-coding regions in the nucleotide chain, as stated in instant claims 1. Rungsarityotin et al. disclose using expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) which represents selectively encrypting only the coding regions identified in the nucleotide chain, as stated in instant claim 1.

Applicants summarize part of Rungsarityotin et al. and argue that the prior art does not suggest encryption of any kind is included in the transformation on page 892. This statement is found unpersuasive as the encrypting limitation is addressed by Rungsarityotin et al. on page 894 (Figure 2 and first paragraph) where they discuss expressed sequence tags (ESTs) treated as genes and marker names (i.e. AP002882 and RZ69) (in Figure 2 and page 894, first paragraph) along the sequence with non-coding regions merely listed as a line (Figure 2) which represents selectively encrypting only the coding regions identified in the nucleotide chain. Applicants argue the same arguments for instant claims 8 and 14 that were already addressed and found

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unpersuasive for instant claim 1 (see above). Applicants argue that Rungsarityotin et al. do not teach a program product in instant claim 17 that selectively decrypts only the coding regions and reassembles the coding and non-coding regions. This statement is found unpersuasive as Rungsarityotin et al. disclose visualizing DNA (abstract), transforming data (page 892, third and fifth paragraph), and choosing between textual and graphical output and transforming XML documents to scalable vector graphics (Figure 2 caption) which represents decrypting and regenerating/reassembling. In addition, Rungsarityotin et al. disclose data structures, software technologies, programs, storage systems, files, and databases (page 892, last four paragraphs and page 893, last paragraph) which represents a program product. Applicants argue that where non-coding regions are represented by a line, it is not possible to reassemble the coding and non-coding region to generate a decoded nucleotide chain. This statement is found unpersuasive as “a decoded nucleotide chain” does not necessarily require that the entire chain must be decoded, so that one section of decoded chain will suffice. Applicants submit that the arguments provided above also apply to the dependent instant claims. The arguments above were already found unpersuasive and are thus unpersuasive for the dependent instant claims as well.

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Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. (e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 13, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rungarsityotin et al. (Pure Appl. Chem., 2002, Vol. 74, No. 6, pages 891-897) as applied to claims 1-4, 6-12, 14, 15, 17, 18, and 20 above, and further in view of Jorgensen et al. (US 2004/0221163 A1).

This rejection is maintained and reiterated for reasons of record.

Rungarsityotin et al. describe the limitations of claims 1-4, 6-12, 14, 15, 17, 18, and 20, as stated above. Rungarsityotin et al. do not describe using cipher block chain encrypting.

Jorgensen et al. describe methods, systems, and program products on readable media for securing transmitting data using an encryption scheme (abstract and 0085) including cipher block

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chaining (0033), as stated in instant claims 5, 13, 16, and 19. Jorgensen et al. describe algorithms for encryption and decryption (0069).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method, system, and program products of Rungsarityotin et al. by use of cipher block chaining as described by Jorgensen et al. where the motivation would have been to improve the security, stability, efficiency, and flexibility of secure data transmission and application sharing over a network, as taught by Jorgensen et al. (0018 and 0019).

Thus, Rungsarityotin et al. in view of Jorgensen et al. make obvious the instant invention.

Applicants argue that the claims are allowable based on the arguments set forth in the 35 USC 102 rejection above. This statement is found unpersuasive as the above-mentioned arguments were deemed unpersuasive for the reasons given above.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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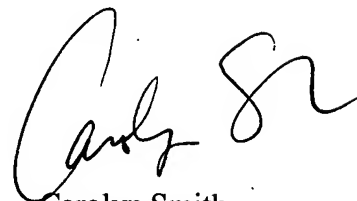
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The Central Fax Center number for official correspondence is (571) 273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on (571) 272-0811.

January 18, 2007

A handwritten signature in black ink, appearing to read 'Carolyn Smith', with a stylized flourish at the end.

Carolyn Smith
Examiner
AU 1631